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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
BELYAEV, YANA	
ART UNIT	PAPER NUMBER
1741	

NOTIFICATION DATE	DELIVERY MODE
12/08/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/589,081	RODRIGUEZ CUARTAS ET AL.	
	Examiner	Art Unit	
	YANA BELYAEV	1741	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-21* is/are pending in the application.

5a) Of the above claim(s) *15-18* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-14 and 19-21* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/16/2011*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

2. Applicant's arguments with regard to Shelby have been fully considered but they are not persuasive.

The Applicant argues that Shelby was cited to merely show that the prior art recognized that glasses containing 60 wt.% lead oxide existed. The Examiner theorizes that one of ordinary skill in the art would have sought to simply use the method of Blackburn to make lead rich glass containing 60% by weight. As discussed above, Blackburn does not disclose or suggest any method for making glasses containing more than about 25 wt.% lead oxide and the art recognized significant problems with use of the float glass process of high density lead glasses as disclosed on pages 1-2 of the specification.

The Examiner respectfully disagrees. First, neither claim 1 nor claim 8 recite "high density lead glass." In fact the only mention of density is in claim 1, which states that the molten metal has a density higher than that of ribbon of glass. This one limitation is not equivalent to the statement that the lead glass is high density. Second, the Applicant has failed to address the Examiner's reasoning for combining Shelby's 60% by weight glass with the method disclosed by Speit in view of Blackburn and Loukes. Specifically, the Examiner stated it would have been obvious to one of ordinary skill in the art at the time of the invention to have simply changed the lead oxide concentration in a flat glass to 60 % lead oxide, which is a known lead oxide concentration in glass (Shelby, abstract) without making any changes to a known method of

forming flat glass, specifically by a float glass process, to produce a flat glass comprising 60% lead oxide. That constitutes a simple substitution of one known element for another to obtain predictable results.

Election/Restrictions

1. Applicant's request for rejoiner in the reply filed on 7 September 2011 is acknowledged. The request for rejoiner is on the ground(s) that claims 15-18 were deemed to lack unity on the ground that the special technical feature "comprising at least 30% lead oxide by weight" lacked novelty. However, claims 15-18 have been amended to depend from claim 1 and thus intrinsically share its general inventive concept and unique special technical features. This is not found persuasive because claim 15 is treated as an independent product claim (see MPEP 2113). Additionally, the Applicant has failed to argue that the special technical feature, "comprising at least 30% lead oxide by weight" is in fact novel and is not taught by US 5,073,524. The request for rejoiner is therefore not granted.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-3, 7, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,073,524 (Speit hereinafter) in view of US Patent 5,221,646 (Blackburn hereinafter) and further in view of US Patent 3,674,453 (Loukes hereinafter).

Regarding claims 1-3, 7, 19, and 21, Speit discloses radiation shielding windows to be employed in various facilities such as research installations, employing or separating radioactive isotopes, and reprocessing plans (col. 1, lines 25-30 and Fig. 4), wherein the windows comprise 24-46 % by weight of lead oxide (col. 3, line 68). The window comprises multiple glass layers, wherein at least one of layers A-D comprises the glass according to this invention (col. 7, lines 10-13 and Fig. 4, "A"-"D"), wherein it is depicted in Figure 4 that all of the glass layers are flat panes.

Speit does not disclose the method by which the flat, radiation shielding windows are produced.

Blackburn discloses a neutron absorbing glass sheet which comprises from about 1 to about 25 weight percent lead oxide (col. 3, line 24) and is formed using a float glass process similar to that employed to form conventional commercial glass as is well known in the art (col.

3, lines 59-62). It is interpreted by the examiner that the scope of "about 25 weight percent" includes 30 weight percent. See MPEP 2144.05 I.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have made the flat window disclosed by Speit by the float glass process disclosed by Blackburn for glass sheets comprising from 1 to about 25 percent lead oxide. The motivation to do so would have been the rationale that a float glass process is a well known method in the art to form a glass sheets. It would have also been known to one of ordinary skill in the art at the time of the invention to have applies the float glass process to form glass sheets comprising 1 to about 25 weight percent lead oxide, as disclosed by Blackburn. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have applied the method for forming glass sheets comprising 1 to about 25 weight percent lead oxide disclosed in Blackburn to forming flat window panes comprising 24 to 46 percent by weight lead oxide, as disclosed by Speit.

Speit in view of Blackburn do not disclose that the floating occurs on a bath of molten metal comprising tin in a float plant with a neutral gaseous atmosphere above the glass and bath of molten metal. Speit in view of Blackburn also do not explicitly disclose that the glass has a density higher than that of the glass and that the temperature of the floating glass is between 500 and 800°C.

However, Loukes teaches a method for producing flat glass by a continuous float glass process (col. 2, lines 47-52), wherein the bath is a bath of molten tin or a molten tin alloy in which tin predominates and which has a specific gravity greater than that of the glass (col. 4, lines 61-64). Loukes also teaches that the floating occurs in a float plant with a neutral gaseous

atmosphere, e.g. a nitrogen atmosphere, above the ribbon of glass and bath of molten metal (col. 3, lines 12-15). Since the atmosphere is a nitrogen atmosphere, it is interpreted by the examiner that the atmosphere comprises no oxygen. In the alternative, it would have been obvious to one of ordinary skill in the art at the time of the invention to have limited the amount of oxygen to less than 5 ppmv oxygen in order to ensure purity of the nitrogen atmosphere. Since the atmosphere is a nitrogen atmosphere, the atmosphere does not comprise hydrogen. It would have been obvious for one of ordinary skill in the art at the time of the invention to have applied the method disclosed by Loukes to teach a conventional commercial float glass process, as disclosed by Speit in view of Blackburn for forming a lead oxide flat glass, since method of Loukes discloses a well known float process in which a continuous ribbon of glass is produced on a molten metal surface (col. 2, lines 47-52).

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speit in view of Blackburn and further in view of Loukes as applied to claims 1-3, 7, 19, and 21 above, and further in view of US Patent Application 2005/0028559 (Hiromatsu hereinafter) and US Patent 5,120,579 (Gardner hereinafter).

Regarding claim 4, Speit in view of Blackburn and further in view of Loukes do not disclose that the temperature of the bath of molten metal is lower than the temperature of a bath of molten metal in a float plant for a soda-lime-silica glass containing no lead.

Hiromatsu, however, discloses that the molten metal in a float plant for a soda-lime-silica glass containing no lead is between 600 and 1050 degrees Celsius and is directly correlated to the glass transition point of soda lime silica glass, which is 550 degrees Celsius (paragraph 5).

Gardner discloses that the glass transition point of glass comprised substantially of lead oxide is about 300-400 degree Celsius (column 1, lines 46-49).

Thus, it would have been obvious for one of ordinary skill in the art at the time of the invention to have the temperature of the bath of molten metal be lower in a float plant for a glass containing lead oxide than for a soda lime silica glass containing no lead, since the glass transition point of glass comprised substantially of lead oxide is less than the glass transition point of soda lime silica glass.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Speit in view of Blackburn and further in view of Loukes as applied to claims 1-3, 7, 19, and 21 above, and as evidenced by *Lead Galliate Glasses* (Shelby hereinafter).

Regarding claim 8, Speit in view of Blackburn and Loukes do not disclose that the glass comprises 60% by weight lead oxide.

However, Shelby discloses glasses containing 60 to 80 mol% lead oxide (abstract). Shelby specifically teaches that glasses containing 70 to 75 mol% PbO are good glass formers, with little tendency to crystallize, and exhibit good weathering behavior on exposure to normal atmosphere (abstract).

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have simply changed the lead oxide concentration in a flat glass to 60 % lead oxide, which is a known lead oxide concentration in glass (Shelby, abstract) without making any changes to a known method of forming flat glass, specifically by a float glass process, to produce

a flat glass comprising 60% lead oxide. That constitutes a simple substitution of one known element for another to obtain predictable results.

6. Claims 5, 9, 10, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speit in view of Blackburn in view of Loukes as applied to claims 1-3, 7, 19, and 21 above, and further in view of US 3,801,412 (Brichard hereinafter) and *LX-57B Lead Glass for Radiation Shielding* (Direct Scientific hereinafter).

Regarding claims 5, 9, 10, and 20, Speit in view of Blackburn and Loukes do not disclose that the temperature of the floating glass is between 500 and 800 degrees C.

However, Brichard discloses that in at least one zone where the temperature of the floating glass is in the range of 590°C to 800°C (2:33-35).

Furthermore, Brichard teaches that it is generally known to maintain a generally neutral and/or protective atmosphere inside the tank. In this way active elements such as oxygen are prevented from entering into chemical reaction with the molten material to form compounds liable to form agents which would contaminate the glass or spoil the surface quality of the sheet or ribbon (1: 14-21).

Since Brichard teaches that it is desirable to prevent oxygen from entering into chemical reaction with the molten material, the Examiner interprets that this is a teaching of the gaseous atmosphere containing less than 5 ppmv oxygen, preferably no oxygen.

Furthermore, Loukes teaches a method for producing flat glass by a continuous float glass process (col. 2, lines 47-52), wherein the bath is a bath of molten tin or a molten tin alloy in which tin predominates and which has a specific gravity greater than that of the glass (col. 4,

lines 61-64). Loukes also teaches that the floating occurs in a float plant with a neutral gaseous atmosphere, e.g. a nitrogen atmosphere, above the ribbon of glass and bath of molten metal (col. 3, lines 12-15). Since the atmosphere is a nitrogen atmosphere, it is interpreted by the examiner that the atmosphere comprises no oxygen. In the alternative, it would have been obvious to one of ordinary skill in the art at the time of the invention to have limited the amount of oxygen to less than 5 ppmv oxygen in order to ensure purity of the nitrogen atmosphere. Since the atmosphere is a nitrogen atmosphere, the atmosphere does not comprise hydrogen.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined Brichard with Speit in view of Blackburn and Loukes because Brichard teaches to act on the gaseous atmosphere above the flat glass in such a way as to bring about a heat distribution which is more favorable to the desired result of avoiding or reducing defects in the geometry of the upper face of the flat glass (1:63-67).

Speit in view of Blackburn and Loukes do not disclose the density of the lead oxide glass.

However, Direct Scientific, which discloses a lead oxide glass comprising at least 55 percent lead oxide, teaches that the minimum density is 4.36 (Properties).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined Speit in view of Blackburn and Loukes with Direct Scientific since both Speit in view of Blackburn and Loukes and Direct Scientific teach lead oxide glass. Therefore, it would follow that since both teach lead oxide glass, and since the density of lead oxide glass is primarily based on the density of lead oxide, that the properties of the glass, specifically density, would be the same.

7. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speit in view of Blackburn and Loukes as applied to claims 1-3, 7, 19, and 21 above, and further in view of US Patent Application 2002/0162358 (Jeanvoine hereinafter).

Regarding claim 6 and 11, Speit in view of Blackburn and Loukes do not disclose a molten metal treatment station, but Jeanvoine who discloses apparatuses designed to melt and refine glasses of highly varied compositions, in this case glasses intended to feed a float plant for producing flat glass (paragraph 75), teaches that the float plant includes a molten metal treatment station (paragraph 89-90).

Jeanvoine also teaches that before the float plant, the glass is melted in a furnace that includes at least one submerged burner (Figure 1, "1' ").

It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the teachings of Jeanvoine with Speit in view of Blackburn and Loukes, since Jeanvoine teaches forming glass sheets without any batch stone, bubbles or any cause of defects (paragraph 3).

6. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Speit in view of Blackburn and Loukes and further in view of Jeanvoine as applied to claim 11 above, and further in view of WO 03/045859 (Maugendre hereinafter).

US Patent 7,428,827 is used as an English Language translation of WO 03/045859. All citations refer to US Patent 7,428,827.

Regarding claims 12-14, Speit in view of Blackburn and Loukes and further in view of Jeanvoine teaches a first and a second tank in a series (Jeanvoine, Fig. 1, "2" and "9"), but does not disclose that the second tank is fed with lead oxide.

Maugendre also teaches a float plant which includes a furnace with two compartments (Fig. 2, "1" and "2"). Maugendre does not teach that the second tank is fed with lead oxide, but Maugendre does teach that a composition is fed to the first tank which includes alumina, silica, alkali metals, alkaline-earth-metals and boron in their oxidized form and that a specific percent of float glass cullet is fed to the second tank (col. 9, lines 3-10 and 46-59). Maugendre teaches that the cullet used to feed the second tank comes from the flat glass industry and in this case is soda-lime-silica glass (col. 10, lines 1-3). The first tank is equipped with at least one submerged burner (co. 7, lines 54-56).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have fed lead oxide in the second tank, since according to Maugendre the float glass cullet is added to the second tank and the batch materials are added to the first tank.

Maugendre also teaches that the electric furnace (module 1) is at a lower temperature than the submerged burner furnace (module 2) (col. 10, lines 14-17).

It further would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the teachings of Maugendre with Jeanvoine since two melting modules using different technologies allows the greatest benefit to be derived from their advantages: on the one hand, use is made of the reliability of a proven industrial solution (electric melting, fuel-fired furnace), and of the quality of the glass obtained therewith, and, on the other hand, the high efficiency, the great flexibility of use, and the less stringent requirement

in terms of the materials that can be melted of a submerged-burner melting mode is also enjoyed. Their complementing natures are played off against each other (col. 8, lines 58-67).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YANA BELYAEV whose telephone number is (571)270-7662. The examiner can normally be reached on M-F 9 am- 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Daniels can be reached on (571) 272-2450. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. B./
Examiner, Art Unit 1741

/Matthew J. Daniels/
Supervisory Patent Examiner, Art Unit 1741